MISSOURI AIR POLLUTION CONTROL PROGRAM
GUIDANCE FOR
MODELING PROTOCOLS FOR CONSTRUCTION PERMITS

In order to prevent delays in issuing permits that require modeling, the applicant will be required to submit a modeling protocol for approval. Please sequence the information in the protocol as follows:

1. A detailed description of the proposed project. All pollutants emitted by the facility should be noted. The description will also include source characteristics such as the source type (area, volume, point, etc.) as well as all relevant parameters (stack height, temperature, velocity, etc.). Attached is a guidance document for modeling certain types of point, area, and volume sources.

2. A map of the immediate area surrounding the source. It must be large enough to show all contiguous source property and must show correct orientation and scale. All buildings close enough to the source to influence downwash calculations must be drawn to scale and must include dimensions (length, width, and height). All sources must be indicated on the map and denoted with the source identifier used in the modeling. The property boundary must be shown and any fences along these boundaries must be indicated.

3. A description of the surrounding terrain. This should include a description of the procedure used to determine whether the area to be modeled is rural or urban.
   a. If the flat terrain option is selected, a detailed discussion of the surrounding area, including verification that all terrain heights are below stack/release heights, must be provided.
   b. If the elevated terrain height option is necessary, the procedure used to obtain receptor heights must be described. If heights are taken from a geological survey 7.5^0 map, the quadrangle name and coordinates should be provided. If other sources of elevations are to be used, they must be either provided or described in sufficient detail so they may be validated.

4. A comprehensive description of the receptor network including both coarse and fine grids. For the fine grid, 50-meter spacing of receptors along the property boundary is required, as well as 100-meter spacing in all high impact areas. As the distance from the property increases, the spacing of the outer grid should become steadily more coarse (from 100 meters to 250 to 500 to 1 kilometer).

5. The name and version of any software used. The most current version of the ISCST model is recommended for most applications. This would also include any front-end package for the ISC model, or any program (or procedure) used to calculate building downwash parameters.

6. Other required information:
   a. the meteorology to be used and its source
   b. particle size distribution and how it was developed, if necessary
   c. any references used (i.e., ISC user's guide or the guideline on air quality models)
   d. emissions to be used (actual or allowable) and all emission calculations
   e. a description of any control equipment

Once a protocol has been approved, the preliminary modeling may be submitted. When necessary, this modeling will be used to determine whether a NAAQS or PSD increment analysis will be required. If so, the location (in UTM coordinates or latitude/longitude) of the proposed facility/modification will be required to allow for the development of the appropriate source inventory by the Air Pollution Control Program. An additional protocol should be submitted to describe the procedure for the NAAQS or increment analyses.

A NAAQS analysis must include the facility's emissions plus an evaluation of the background concentration near the source. According to Code of Federal Regulations 40, Part 51, Appendix W, background can be described as the combination of pollutant concentrations due to natural, nearby (excluding the facility itself), distant and unidentified sources. The nearby sources are accounted for by including the NAAQS inventory for sources located in the vicinity of the facility. The remaining portions of the background are accounted for by including current air quality monitoring data. All background concentration information will be provided by the Air Pollution Control Program. An increment analysis will require the inclusion of all sources that have consumed air resources in the vicinity of the proposed source since the baseline date.